

Enhancing Russian Tank Survivability: Tank-Support Combat Vehicle Enters Tank Battalions

by Dr. Lester W. Grau and Dr. Charles K. Bartles

Pundits have declared the obsolescence of the main battle tank since the 1973 Arab-Israeli War, when defending antitank (AT) grenade launchers and antitank guided missiles (ATGMs) inflicted significant losses on Israeli armor.¹ Although U.S. tanks played a key role in Operations Desert Storm and Iraqi Freedom, the United States fought Operation Enduring Freedom in Afghanistan for 20 years without deploying a single tank (and not much artillery). However, when decisive combat decides the fate of international and national powers, tanks are a necessary component of conventional maneuver war under nuclear-threatened conditions.

Modern maneuver combat is seldom a single-tank-on-a-single-tank contest. Rather the coordinated application of artillery, armor and infantry firepower, and maneuver at the decisive point and time decides the outcome. Theoretically the Soviet armored attack is a highly choreographed, lethal ballet determined by an artillery schedule involving massive artillery fired in phases, behind which tanks advanced on line, followed closely by infantry fighting vehicles (IFVs) and dismounted infantry. The artillery would rain a moving curtain of fires to the front and flanks of the tanks, while the IFVs and dismounted infantry would protect the tanks from enemy AT weapons and enemy infantry. The tanks in turn would protect the IFVs and dismounted infantry from enemy tanks.

The theory was good, but there were problems with the choreography. Tank commanders do not want to attack slowly against the enemy's main defensive line but want to breach it rapidly. Soviet *boyeva mashina pekhoty* (BMPs) were hard-pressed to keep up with the tanks, and dismounting infantry for the final assault can bog down the attack significantly. BMP armor is not as robust as tank armor, particularly in the close fight. Artillery fire may be on or off target and on time or too early or late. A large gap can appear between the tanks and infantry at the crucial time, and artillery fire may not be able to engage the forward enemy without endangering the tanks, while the IFVs and dismounts struggle to close the gap. Tanks had to fight as a member of the combined-arms team to survive, but they could not afford to slow down and lose the attack's momentum.

What was required were equally armored and equally mobile "almost-tanks" equipped to destroy enemy AT weapons, strongpoints, helicopters, infantry and tanks. They would attack on line with the tanks and ensure the successful outcome to the lethal ballet by providing close-combat support. They were not tanks since they lacked the tank main gun. However, they were better armored, armed and powered than the BMP IFV.²

Initial research, design

The initial project research and design work to create *boyevaya mashina podderzhki tankov* (BMPTs) began at the Chelyabinsk Tractor Plant in 1982, but it was suspended due to the collapse of the Soviet Union. The Russian need for a BMPT again surfaced during their initial defeat in urban combat in Grozny on New Year's Eve 1994. Therefore, BMPT research and design started again in 1998. Successful tests of the new fighting vehicle concluded in 2006. The test model demonstrated good fire density from its cannon, machinegun and automatic grenade launcher combination linked to its battlefield surveillance systems enabled rapid detection of enemy low-signature AT weapons. In addition, it mounted four ATGMs.

In 2007, the Russian ground forces acquired their first BMPTs. Kazakhstan ordered its own BMPTs in 2013 and began manufacturing them under license in 2014.³ Russia deployed BMPTs to Syria in 2017, where combat testing, particularly in urban combat, proved quite successful.⁴ After an interlude, the Russian ground forces began introducing BMPTs into formations and units in 2018. The BMPT went through more successful field testing during Exercise Kavkaz 2020. Apparently, an anti-helicopter and anti-unmanned aerial vehicle (UAV) mission became part of the BMPT requirements during this exercise.

Algeria has ordered more than 300 BMPTs.⁵

Nicknamed the Terminator-2, the BMPTs have T-72 and T-90 chasses, corresponding to the tank armament of the receiving unit. Terminator-2s mounted on the T-14 Armata chassis are possible when the T-14 goes into full production.⁶

Terminator-2 characteristics⁷

Weapons

- Four Ataka 9M120m laser-guided AT missiles (AT and high explosive to 6,000 meters);
- Two 30mm 2A42 coaxial cannon (200-300 rpm to 4,000 meters);
- Three AGS-17 automatic grenade launchers (400 rpm to 1,700 meters).

Tactical-technical characteristics

- Combat weight: 48 tons;
- Length of chassis: 6.7 meters;
- Width between side skirts: 3.8 meters;
- Height of the commander's panoramic sight: 3.4 meters;
- Ground clearance: 0.4 meters;
- Engine: V12 V-92S2 diesel turbine;
- Engine power: 1,000 horsepower;
- Highway speed: up to 65 kph;
- Highway range: 550 kilometers;
- Negotiated grade: up to 30 degrees;
- Negotiated ditch: 2.7 meters;
- Can submerge 1.2 meters in water, 1.8 meters with preparation and snorkel five meters of water.



Figure 1. The Russian army's BMPT-72. The turret has been modified from earlier models, with armor surrounding the ATGM tubes and some other changes, but the hull retains the grenade launchers. (Photo copyright Vitaly Kuzmin. Licensed under a Creative Commons Attribution-NonCommercial- International License NoDerivatives 4.0.)

Russia is still experimenting, but the optimum mix of BMPTs to tanks appears to be about one per tank platoon (1:3 ratio of BMPTs to tanks). In practice this has resulted in the Russians experimenting with a nine- to 10-vehicle BMPT company. (Reports on the exact number of BMPTs in the company vary.) The BMPT company can fight as a company, be broken into platoons and attached to tank companies, or they can have single BMPTs attached to tank platoons.

Likely, the ideal organizational structure for any given situation is still being determined. Although Russia does plan on adding BMPTs companies to tank battalions, it is unlikely that Russia intends to add a BMPT to every tank battalion, and BMPTs will likely be a niche capability found in a small percentage of Russia's tank battalions.

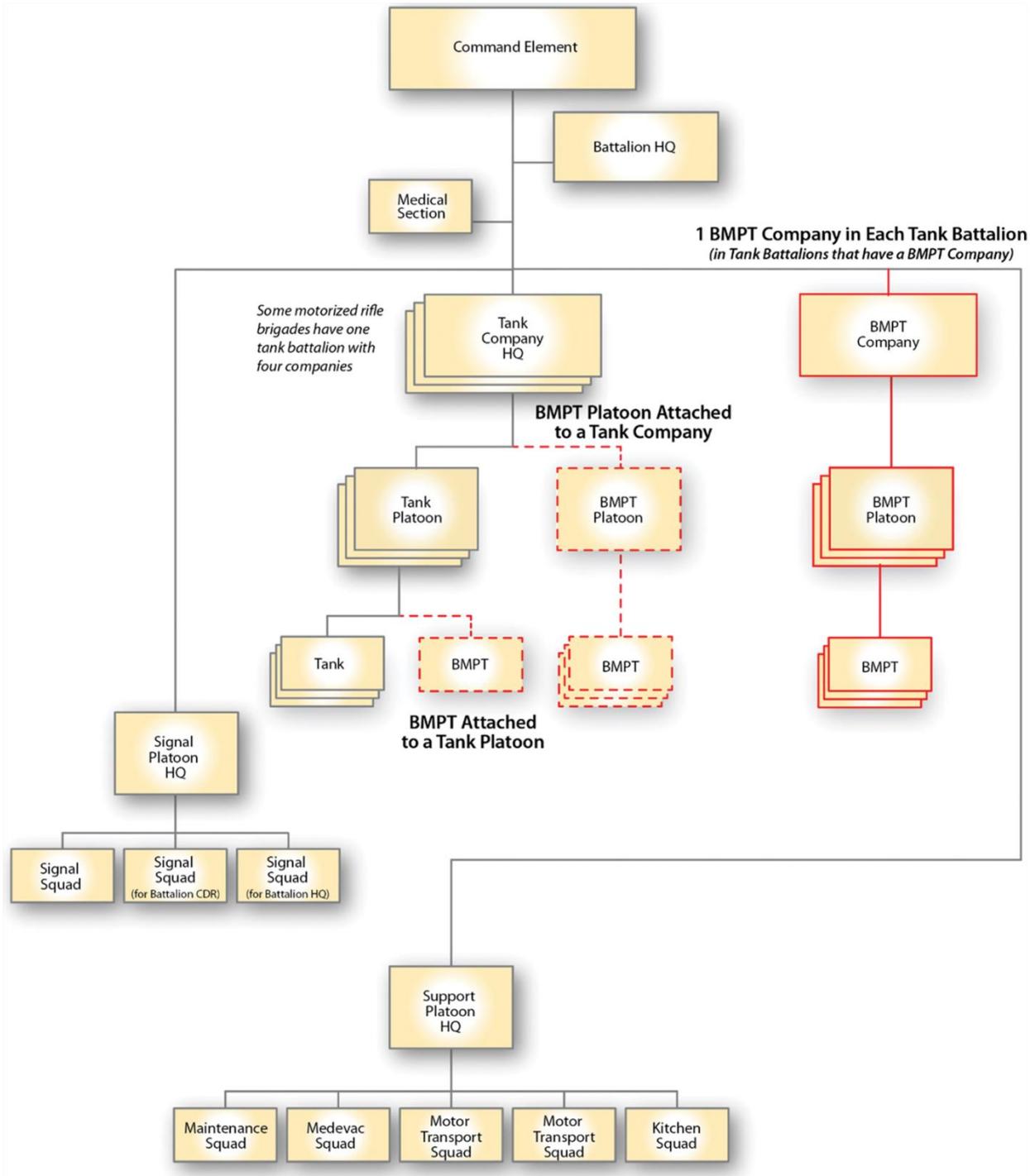


Figure 2. BMPT integration into a tank battalion. (U.S. Army graphic by Dr. Charles K. Bartles)

Incorporation of the BMPT will produce changes in Russian tank-battalion deployment and routine. For example, the attack frontage of the tank battalion should expand to accommodate the extra vehicles. Extra fuel and different types of ammunition will add to logistics support. Separate and combined tank and BMPT training will require planning, range space and support.

Soviet/Russian tanks have had three-man crews since the introduction of the T-64 tank in the early 1960s. The smaller, lower-silhouette tanks proved themselves in combat, but tank battalions had to supplement them with motorized riflemen to assist with tank security since it is difficult to conduct maintenance, prepare positions, eat, man the tank continually and get sufficient crew rest with a three-man crew. The five-man BMPT crew may offer some assistance in this effort.

Battalion-level maintenance will adjust to the new vehicles, expand their spare-parts stockage, and learn to maintain new weapons and optics. Barracks and motorpool space are an immediate garrison concern.

BMPTs in combat

During the attack, BMPTs will normally be in the first echelon of the tank-battalion combat formation. The BMPTs will probably deploy singly between tanks in one line. If needed, it is possible to place some BMPTs between tank platoons in a tank company or on exposed flanks. After the main body has penetrated the enemy main defensive line, some BMPTs may join the battalion commander’s reserve and execute missions during the continued attack. BMPTs are a logical choice in an assault group in an attack on urban terrain.⁹

Figure 3 depicts an attacking 31-tank battalion equipped with a 10-BMPT company and reinforced with a motorized rifle company and a mortar battery from the parent motorized rifle battalion. The depicted self-propelled howitzer battalion is part of a larger brigade artillery group and positioned well forward to provide artillery support to the attack. The tank battalion is attacking a portion of a defending enemy battalion task force. The enemy force within the attacking battalion-task-force sector is a company task force plus a platoon of an adjacent company task force to the north. The accompanying motorized rifle force will dismount only when required. Russian UAVs are flying in reconnaissance support. Individual BMPTs secure the battalion flanks while interspersed on line between the attacking tank platoons. The first and second tank companies are fully deployed on the line. The third tank company is minus a tank platoon and a motorized rifle squad that constitute the tank battalion reserve.

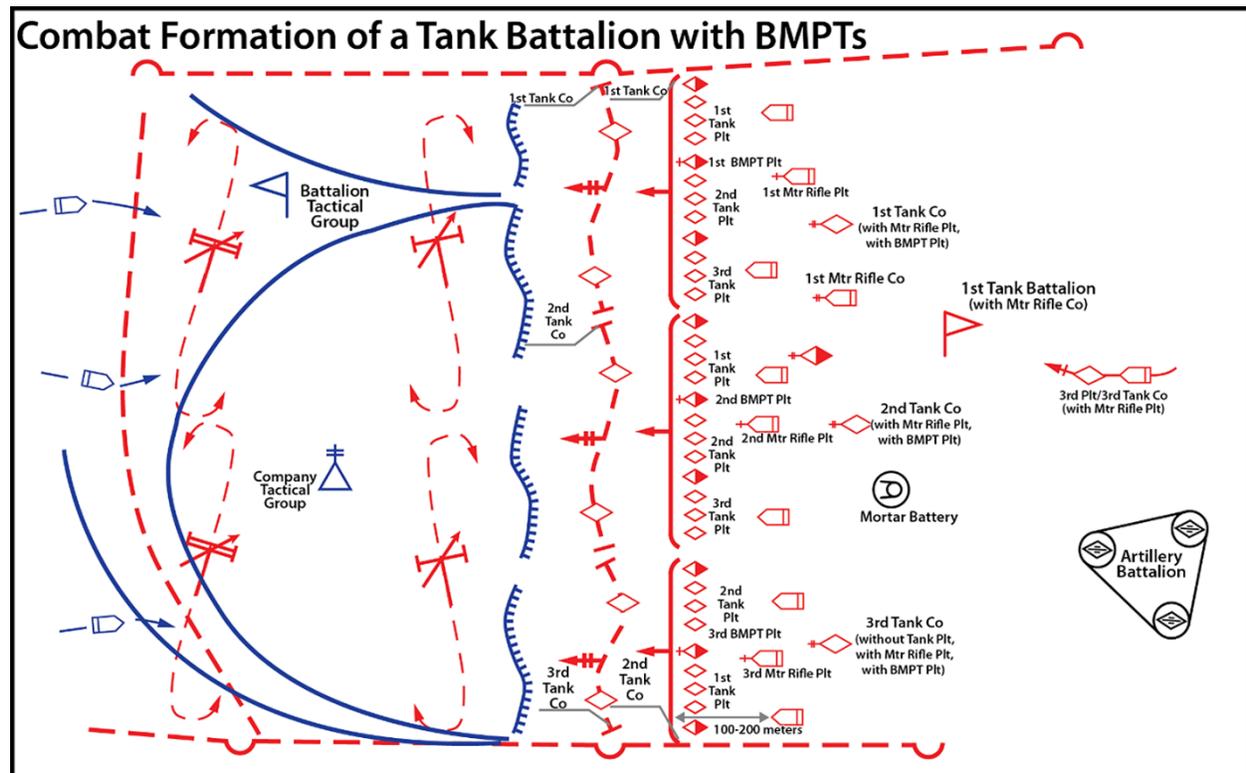


Figure 3. Deployment of attacking tank battalion equipped with BMPT and reinforced with a motorized rifle platoon (variant).⁸ (Graphic first published in *Армейский Сборник (Army Digest)*, September 2021 edition; redrawn and translated into English by Dr. Charles K. Bartles)

The immediate mission is the rear boundary of the defending enemy company. The commander determines the width of the attack frontage based on his mission, the terrain, the degree of enemy defensive preparations and the enemy AT weapons strength. The commander may expand the width of the attack sector due to the presence of 10 more combat vehicles in his formation. The tempo of the attack should speed up since the combat power of the BMPT offsets the need for the follow-on infantry fighting vehicles to stick as close to the tanks as before. The faster attack should achieve the immediate mission line earlier, or the mission line itself may be deeper. This will be closely coordinated with the artillery.

After penetrating the forward prepared defense, the need for concentrating the bulk of the BMPTs in the breakout sector lessens. Tanks are ideal for the pursuit. However, the opening flanks of the expanding breakthrough need to be secured, and BMPTs are ideal for that mission. Should the pursuing tanks be hit with a counterattack or a meeting battle, BMPTs in the tank column or those covering the tank advance from commanding heights can be decisive. Should the commander dispatch a forward detachment, BMPTs provide required speed, protection and combat power.¹⁰

Vital role for BMPT

BMPTs may perform a vital role in conventional maneuver war under nuclear-threatened conditions, but their use in internal conflicts also needs consideration. Missions, troop composition, assets and terrain may differ. However, BMPT deployment retains interesting possibilities. Tank units in internal conflicts are often decentralized, and consequently BMPTs may deploy for decentralized missions as well. They can rout illegal armed formations, seize objectives and urban areas, control territory and provide defensive fire support.

Further, BMPTs can also seal off an area, combat car bombs, cover or escort vehicle convoys and secure important facilities. They can cut roads, interdict supplies, prevent replacements and participate in the destruction of enemy pockets. BMPTs performed successfully in the internal conflict in Syria where subunits reinforced with BMPTs provided unhampered troop movement and maneuver, protected humanitarian relief and civilian transport, conducted road patrols and secured bridges and crossing sites.¹¹

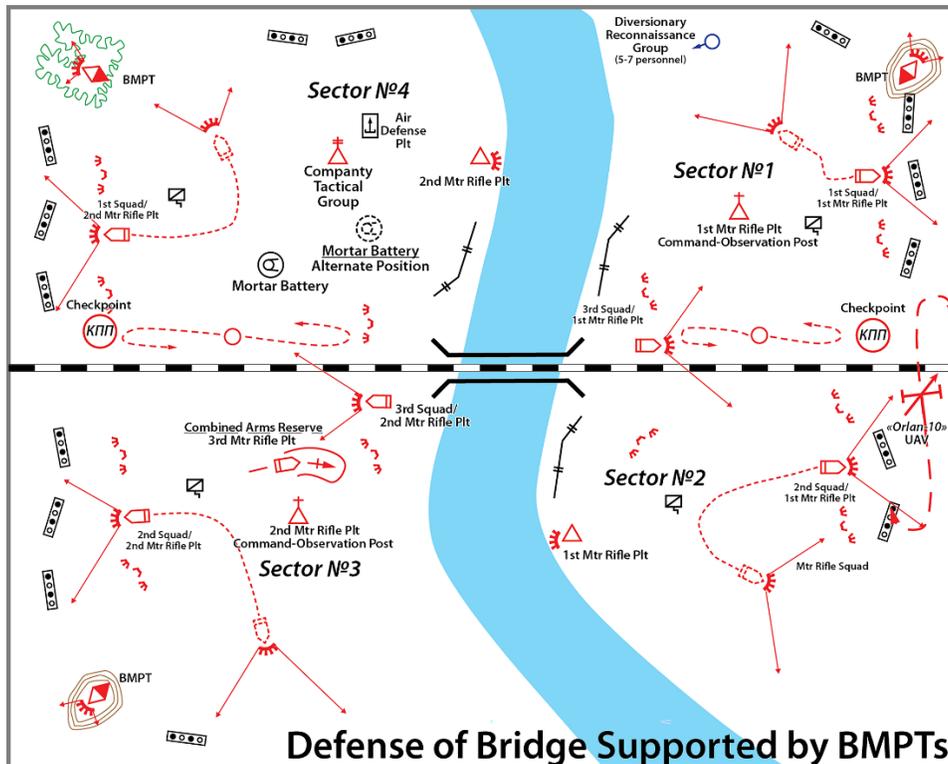


Figure 4. Defense of a bridge supported by BMPTs.¹² (Graphic first published in *Армейский Сборник (Army Digest)*, September 2021 edition; redrawn and translated into English by Dr. Charles K. Bartles)

Figure 4 shows a railroad-bridge defense by a Russian company tactical group using all its motorized rifle platoons, reinforced by the battalion mortar battery, a brigade air-defense platoon, a crew of the brigade UAV company and a BMPT platoon:

- First motorized rifle platoon mans defensive positions on the east side of the river;
- Second motorized rifle platoon mans defensive positions on the river's west side;
- Both rifle platoons cover the perimeter and the water approach at riverbends;
- Mixed anti-personnel and AT minefields on the perimeter and barbed wire obstacles on the bridge banks protect the crossing site;
- East and west perimeter checkpoints control the crossing;
- Roving guards patrol the track on both sides of the bridge;
- The defending platoons have alternate prepared fighting positions;
- Third motorized rifle platoon is in reserve, prepared to launch a mounted or dismounted response to an enemy probe;
- The three BMPTs take positions on higher ground or hidden in the woods at the northern and southern ends of the defensive sector.
- An enemy squad is moving into the area from the northeast.

Conclusion

Given the amount of urban warfare, large numbers of Russian tanks reportedly lost to ATGMs and problems that the Russians have had fielding infantry personnel during its 2022 invasion of Ukraine, the environment appears ripe for the use of BMPTs. Surprisingly, the first reports of the system entering combat did not occur until two months after the start of the conflict. The system would have been better suited to the urban warfare that characterized the first few weeks of the invasion.¹³ Reports about the success (or failure) of the BMPT in the Donbas have yet to surface, but if successful, the BMPT could be part of the Russian answer to the proliferation of ATGMs and its own dwindling personnel.

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Notes

¹ The Israelis reportedly lost more than 400 tanks, with another 600 damaged but returned to combat. Arab tank losses were estimated at 2,500. The Soviet Sagger ATGM and shoulder-fired RPG-7 inflicted heavy armor casualties when deployed in the defense-in-depth. See George W. Gawrych, "The 1973 Arab-Israeli War: The Albatross of Decisive Victory," Leavenworth Paper 21, 1996.

² For a history of the development of the BMPT and the specifics of the Terminator -2, see Lester W. Grau, "Preserving Shock Action: A New Approach to Armored Maneuver Warfare," *ARMOR*, September-October 2006 edition, <https://apps.dtic.mil/sti/pdfs/ADA456423.pdf> and Lester W. Grau and Charles K. Bartles, "A New System Preserves Armor Dominance of the Future Battlefield: The BMPT Terminator-2," *ARMOR*, April-June 2015 edition, <https://community.apan.org/wg/tradoc-g2/fmso/m/fmso-monographs/195073>.

³ Grau and Bartles, "A new system. ..."

⁴ M. Yurshin, A. Hazarenko and A. Chogovadze, "Tank Survivability: Employment of Tank Support Combat Vehicles under current conditions," *Армейский Сборник (Army Digest)*, September 2021,

⁵ Anton Lavrov and Alexsei Ramm, "They'll be back: Terminators get a year for testing," *Izvestia*, <https://iz.ru/1124767/anton-lavrov-aleksei-ramm/oni-eshche-vernutsia-terminatoram-dali-god-ispytanii>, Feb. 15, 2021.

⁶ Yurshin, Hazarenko and Chogovadze.

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

¹¹ Ibid.

¹² Ibid.

¹³ Sergey Ptichkin, "The Armed Forces of the Russian Federation used the BMPT 'Terminator' for the first time during the special operation," *Rossiyskaya Gazeta*, May 18, 2022; <https://rg.ru/2022/05/18/vs-rf-vpervye-primenili-v-hode-specoperacii-bmpt-terminator.html>.

Acronym Quick-Scan

AT – anti-tank

ATGM – anti-tank guided missile

BMP – *boyeva mashina pekhoty* (Russian infantry fighting vehicle)

BMPT – *boyevaya mashina podderzhki tankov* (Russian tank-support combat vehicle)

CDR – commander

FMSO – Foreign Military Studies Office

HQ – headquarters

IFV – infantry fighting vehicle

Plt – platoon

UAV – unmanned aerial vehicle



Figure 5. The first model of BMPT-72. Note the unarmored ATGM tubes, hull-mounted grenade launchers above the tracks and Active Protection System tubes barely visible at the base of the turret. (Photo copyright Vitaly Kuzmin. Licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.)



Figure 6. A Russian army BMPT-72 with a T-80 and T-90. (Photo copyright Vitaly Kuzmin. Licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.)



Figure 7. The latest model of BMPT-72 destined for the export market. Note the redesigned turret and lack of forward-facing grenade launchers. (Photo copyright Vitaly Kuzmin. Licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.)